From Need Analysis to Multimedia Development:
Using *Exe-Learning* in Developing Multimedia Based Listening Matarials

By
M. Zaim
Universitas Negeri Padang
mzaim_unp@yahoo.com

Refnaldi
Universitas Negeri Padang
refnaldi@yahoo.com

Abstract

A good multimedia model is developed based on the analysis of learning needs. There are many instructional multimedia models proposed by the instructional designer but it is not a guarantee that those models are suitable with the characteristics of the learners. This article discusses multimedia-based listening materials developed by using exe-learning software. This was a research and development study, and the data of the study were obtained from students' responses on the questionnaires regarding the students' needs on the use of mltimedia in listening courses. The results of the study show that (1) there are some explanation and examples that should be considered as the input in the multimedia, (2) students need a wide variety of genres or text types, and (3) students need the appropriate tasks/activities that directly help improve their knowledge and skills. The appropriate multimedia model consists of four sections: general information section, audio section, video section, and conclusion section. Thus the appropriate need analysis can be used effectively in developing multimedia based listening materials.

Keywords: Exe-learning, Listening, Multimedia, Need Analysis

INTRODUCTION   -

The development of technology brings many benefits, not only for the sake of economy, business, international relations but also for educational purposes. Various studies show that both the collection and storage of information skills as well as learning about the fact that conventionally practiced is no longer sufficient in helping us live, learn, and work in the middle of the community after the year 2010 (Ketsman, 2012: 1). Researches in the field of foreign language learning also show that the development of this technology is helpful to changes in the learning that goes on moods of learning using technology, especially learning by using multimedia technology.

Multimedia is one form of technological developments that influence changes in the system of foreign language learning, especially learning English as a second or foreign language. This is evidenced by the increasing number of teaching-learning process using multimedia technology. For example, in many universities abroad a wide range of subjects relating to language skills, such as listening, speaking, writing, reading (reading), and writing (writing) is offered with the use of multimedia technology in various ways. There are several studies that use multimedia programs as a tool in the learning process, and there are also courses that have been made as the basis for the development of multimedia materials, such as subjects CALL and Listening.

Various studies conducted in the field of foreign language learning show that language learning multimedia technology utilizes positive impact on learners' progress in learning foreign languages. Gilakjani, Ismail, and Ahmadi (2011) found that multimedia-based learning gives positive impact on language learning because this model provides an opportunity for learners to practice through learning by experience (experiential learning), increase the motivation of learners, able to improve the learning outcomes of students are now significantly better, encourage interaction among inter-stdents and students with techers, emphasizing the needs of individuals, and freeing participant students from dependence on a single source of learning results of research conducted by Chang and Lehman showed foreign language learning using interactive multimedia programs provides significant impact on students, ability, and there is no interaction between the types of learning motivation and learning outcomes of students (Chang and Lehman, 2012: 97).

Learning is one of the subjects that received considerable influence on the development of multimedia technology. This is largely attributable to several factors. First, listen to the learning atmosphere, especially listening in English, with multimedia technology provides rich resources and diverse relevant to the contexts of learning a second language. Secondly, a lot of research has been done in the context second language acquisition and computer-assisted language learning (CALL)) shows the advantages of multimedia usage compared to the use of conventional media. Among the advantages of this is a combination of media in the form of plural representation in helping students understand inputs in a new language with ease so that the needs and interests of these students can be maintained. Third, multimedia allows learners to have the opportunity to interact, get feedback as soon as possible, improve learning outonomy, and get the simulation real situations and experiences via video, audio, and graphics. Fourth, devices multimedia, both software and hardware, serves as an important motivator in the language learning process because the material presented through multimedia can bring auntuthiasms into class situations, so as to strengthen the direct relationship between language classes with the outside world (Brinton, 2001: 459—475)

LITERATURE REVIEW
Instructional Model

Understanding the model cannot be separated from the context of the scientific field. Therefore, this term can mean differently in different disciplines. In relation to learning, the term model is often interpreted as a conceptual framework that is used as a guide to design and implement learning activities (Sagala, 2005: 175). As a conceptual framework, an instructional model describes a systematic procedure for organizing learning experiences of students to achieve learning objectives. Therefore, the instructional model serves as a guideline for the learning designers and professors/ teachers in planning and implementing learning activities.

Stern (1987: 35-36) states that developing a model of language learning model is really a form of business to define the basic concepts in planning and implementing the language learning process. This concept is based on the science of language (linguistics), the nature of language learning and other factors that could significantly affect language learning. Joyce, Weil, and Calhoun (2009: 6) say that "models of teaching are really models of learning". They also explain how to help students to learn through setting learning environment so that the learning process in self-learners can occur.

A good instructional model is a product of finding a development process through a series of stages of research. The development of this model is underpinned by the aims and ideas obtained from theoretical studies, related research, and the result of the need analysis implemented in the components of the instructional model itself. Joyce, Weil, and Calhoun (2009) say that a learning model includes five major components or variables: (a) syntax or activity phases, (b) social system, (c) principles of reaction, (d) support systems, and (e) instructional and nurturant effects.

A good instructional model is a model that consists of at least the core elements of instruction, such as aims, evaluation, learning strategy, and learning materials. Dick and Carey (2009: 1) develop an instructional system that is well known and becomes the reference in instructional development. The model can be seen in the following diagram.
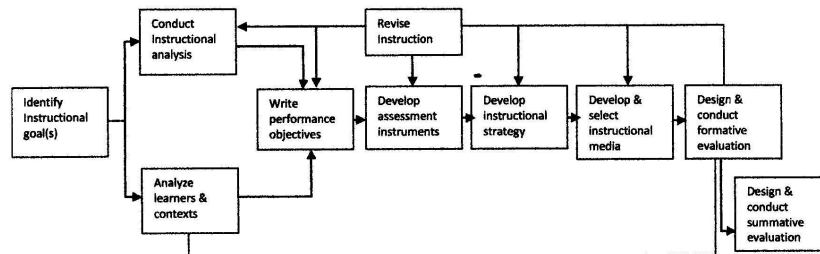
The first step in this system is to determine the new information that will be learned by students in order to achieve the goal of learning (Instructional goals). The second step is to determine the steps that should be followed by students and determine the sub-skills needed to achieve the goals (instructional analysis). Parallel to this step is conducting the analysis of the learners and contexts. Then, based on these two steps, model designers determine performance objectives, develop assessment instruments, develop

instructional strategy, develop and select instructional materials and media, design and conduct formative evaluation, and design and conduct summative evaluation.

Need Analysis

Designing a learning model starts from the question "Why do these students need to learn listening?" The answer to this question can be revealed by analyzing the students' needs. Hyland (2003: 58) says that the term needs analysis is used to refer to the techniques of collecting and analyzing information relating to student needs: a tool for shaping a learning program. Needs analysis is a continuous process so that teachers can modify the learning process in order to better accommodate the learning needs of students.

Actually needs analysis is one of several activities undertaken in designing a language learning curriculum. Nation and Macalister (2010: 1-3) suggest that a model of curriculum design is a design that consists of three outer circles (principles, the environment, requirements) associated with an inner circle (goal) which is supported by three components (content and layout sequence, format and presentation, monitoring and assessment). The outer circle covers the practical and theoretical considerations that will provide the influence in guiding the real process of curriculum design. The inner circle has a purpose as a center. It shows and reflects the importance for a subject or subjects to have a clear purpose.

Furthermore, Nation and Macalister (2010: 24) suggest that there are some things that need to be considered in conducting needs analysis. First, the analysis needs principally directed at the purpose and content of a subject or subjects. Second, the analysis needs to uncover what is already known by the students and what they need to know. Furthermore, the analysis needs to create a belief that the subjects or courses contain matters that are relevant and useful for students. A good need analysis includes the right questions, and finds the answers in the most effective way.

Needs analysis has a variety of purposes in language learning, namely (1) recognizing the language skills of students so that they can carry out certain roles, (2) assisting teachers in determining the accuracy of instructional materials to the needs of the potential learners, (3) selecting the students in one group that truly require specific language skills, (4) identifying someone potential opportunities in the group, (5) recognizing the gap between what the learners are able to do and what they have not been able to do, and (6) collecting information about the experiences of specific learners (Richards, 2001: 57-63).

Based on the above explanation, we can conclude that the needs analysis is an activity in collecting and analyzing information regarding what students should learn, any thing that students have not understood, and anything they want to get from studying the particular subject.

eXe-Learning

eXe is a freely available open source application. It is an authoring and publishing tool for digital content on the internet. One of the major design features of the application is the ability to work off-line, thus no internet connectivity is required to create learning content for the web without having to be connected at that time. From 2008 onwards is part of Open Educational Resources (OER), a term adopted by UNESCO's "Forum on the Impact of Open Courseware for Higher Education in Developing Countries" in 2002. Also it was named a finalist in the New Zealand round of the IMS Global Learning Impact Award 2008. Is currently supported by CORE-

Education, a not for profit educational research and development organization. Initially, it grew out of the Tertiary Education Commission's eCollaboration Fund and was led by New Zealand's University of Auckland and the Tairawhiti Polytechnic. The application is supported as well by an international user community, translated in more than twenty languages, and is accompanied with strong documentation and help.

eXe is available for Windows, Mac and Linux. There is also a handy version of eXe for Windows called **ready2run** which runs entirely from a USB flash disk and does not require to be installed. This could prove very useful if you are away from your normal computer or if you wish to evaluate eXe without installing anything. Home page has full instructions for downloading and installing on all operating systems. It is released under the GPL license which extends certain freedoms to the end user. Other closed source applications such as MsOffice and PDF have function compatibility with eXe. In addition, many other open source programs such as OpenOffice, Hot Potatoes for creating material of its individual components, Geogebra for mathematics, Audacity for sound recording and editing, CamStudio for video editing etc are compatible too.

Many content management and learning management systems do not provide an intuitive WYSIWYG environment where authors can see what their content will look like in a browser when published, especially when working offline. eXe's WYSIWYG functionality enables users to see what the content will look like when published online. Exporting the generated material, in order to cover different educational weight, is possible in various forms such as text files, simple self-contained web pages Menu driven or single page, iPod notes, SCORM 1.2, IMS Common Cartridge or IMS content packages.

RESEARCH METHODOLOGY

The method used in this study was survey. The main objective of this research was to analyzed students' needs on the appropriate model for multimedia based listening. The data required in this study were the answers to questionnaire distributed to 112 students. The items in the questionnaire were classified into three categories, namely listening sub-skills, text-types, and listening tasks. The data were analyzed descriptively by using score.

FINDING AND DISCUSSION

The questionnaire given to the students consists of three basic components of need analysis such as listening sub-skills, text-types, and listening tasks. Listenng sub-skills contain the explanation and examples regarding tyeps of skills needed in listening. Text types include the types of genre that are commonly taught in high school and in listening course. Some examples of text types are *recount, procedure, narrative, report, explanation, and exposition.* The last aspect is task/activity. Tasks/activities include a wide variety of listening tasks/activities in pre-listening stage, whilst-listening stage, and post-listening stage.

Listening sub-skill

Students' need on listening sub-skills is explored through 15 statements. Table 1 below decribes students' responses on each statement.

Table 1: The Importance of listening sub-skills

Item	VI	I	LI	NI	Score	Rank
Processing speech at different rates	188	156	24	1	369	1
Processing lower-frequency vocabulary	144	159	28	0	331	2
Identifying topic of lecture and following topic development	184	129	16	0	329	3
Following different modes of lecturing: spoken, audio, audio-visual	224	90	14	1	329	4
Detecting meanings expressed in differing grammatical forms/sentence types	156	162	6	0	324	5
Making use of facial, paralinguistic and other clues to work out meaning	140	165	18	1	324	6
Adjusting listening strategies to different kinds of listener purposes or goals	188	93	40	0	321	7
Using word-matching strategies	132	174	12	2	320	8
Using background knowledge to make inferences	128	168	22	2	320	9
Identifying purposes and scopes of lecture	148	132	36	0	316	10
Processing more complex structures	148	138	22	1	309	11
Using real-world knowledge and experience to work out purpose, goal, setting, procedure	140	141	20	2	303	12
Recognizing the communicative function of utterances, according to situation, participants, goals	116	174	6	1	297	13
Processing text with higher vocabulary density	116	153	22	3	294	14
Synthesizing scattered information	60	216	12	5	293	15

Note: NI = Not Important, LI = Less Important, I = Important, VI = Very Important

The above table reveals that the listening sub-skills that are considered very important by students are processing speech at different rates (with a score of 369), followed by followed by processing lower-frequency vocabulary (with a score of 331) and Identifying topic of lecture and following topic development (with a score of 329). This suggests that the speed of an utterance is very important for the students. They need to be trained to listen to various utterances at different speeds. Furthermore, they also need to be trained to recognize low level vocabulary usage. Understanding of the topic and the development of the topic is also the case that needs attention in the teaching material, and the topics that are expressed must necessarily be delivered with varying modes of delivery, such as direct delivery, through recorded audio and audio-visual equipment.

Skills to identify the meaning are conveyed by the grammatical form or a different sentence and skills to use the features in non-linguistic meaning is also very important to the respondent. Both of these skills indicate where the understanding of the meaning of what is presented is very important in "Listening" materials. Understand the meaning should be supported by the use of various strategies, such as the use of different strategies for different purposes, use and match strategy and sufficient background knowledge to use in making a conclusion.

From the above table it can be concluded that the respondents consider that the skill with respect to understand the vaious speech, understand the vocabulary at a low frequency, understand the main ideas and development of the topic, and the use of various strategies listening is very important their teaching material in a "Listening I".

Text types

The students' needs regarding the types of text are expressed using sixteen statements. The following table illustrates the responses of the students on each item.

Table 2: The Importance of Text Types

No	Text types	NI	LI	I	VI	Ttl	AV	LN
1	Greeting and leave taking	1	50	171	116	338	3.02	H
2	Personal information	0	16	228	112	356	3.18	H
3	Description: person	0	16	177	180	373	3.33	VH
4	Description: place	0	20	195	148	363	3.24	H
5	Making something	0	22	171	176	369	3.29	VH
6	Doing something	1	10	159	212	382	3.41	VH
7	Comparison and contrast	1	4	150	236	391	3.49	VH
8	Cause and effect	1	12	141	232	386	3.45	VH
9	Direction	1	8	219	136	364	3.25	H
10	Announcement	0	22	168	180	370	3.30	VH
11	Shopping	0	22	156	196	374	3.34	VH
12	Narration	4	36	180	120	340	3.04	H
13	News	0	20	144	216	380	3.39	VH
14	Advertisement	0	32	150	184	366	3.27	VH
15	Problem solving	0	6	165	216	387	3.46	VH

Note: NI = Not Important, LI = Less Important, I = Important, VI = Very Important
Ttl = Total, AV = Average, LN = Level of Need, H = High, VH = Very High

The facts in the above table show that most of the types of text that are offered to students are considered very important, with the level of Very High (VH). There are only five types of text that are at the level of High (H). This illustrates that a listening process needs to load different types of text, so that students have experience in listening to a wide variety of texts. The text type that is considered most important by students is *comparison and contrast* with a mean score of 3.49, followed by *greeting and leave taking*, *problem-solving text* (mean score of 3.46), *cause and effect* with a mean score of 3.45, and *doing something* with a mean score of 3.41.

Types of Task/Activity

Students' needs regarding the types of task/activity are expressed by using twenty-six items. The tasks/activities offered to students are based on common tasks/activities discussed in writing books. Table 3 below illustrates the respondents' answers on each item.
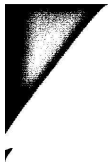
Syllabus development

The syllabus is a very important component in developing a systematic learning model. The components that make up a course syllabus vary, but at least the syllabus should include general information, course descriptions, standards of competences, basic competences, basic course outline, and assessment modes.

General information contains the name of the course, course credits, days and hours of lectures and lecturers names. Description of the courses is usually taken from the curriculum developed by the study program, while others have to be developed by the lecturers. The syllabus developed here is a mixed syllabus because it is developed from combining the activity of the basic principles from four different syllabus models, such as content-based syllabus, text-based syllabus, topic/theme based syllabus, grammar based syllabus. Thus this syllabus contains the types of text required by students, the topics or themes suitable for each text being taught, the lexicogrammar elements that are important to be mastered by students in understanding a particular text, and the processes through which the texts are developed. Relationships that exist among the elements can be described as follows:
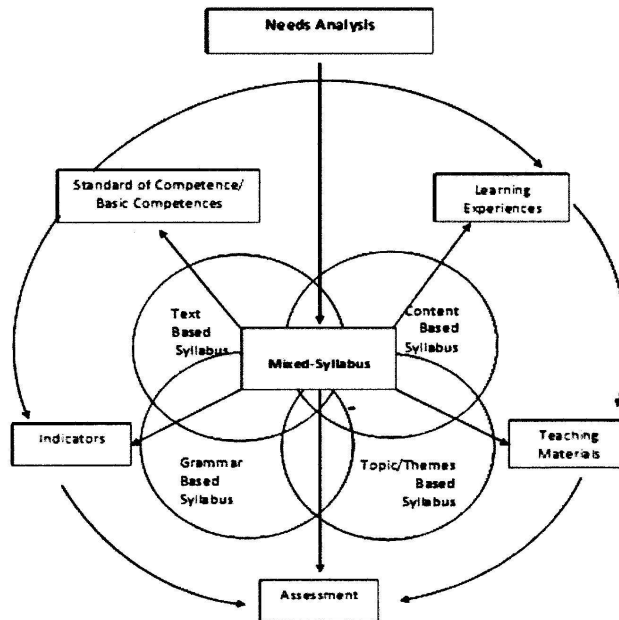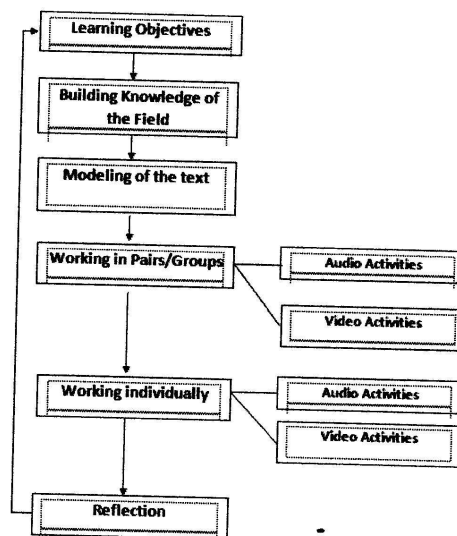

The core component of the syllabus itself is the basic course outline for one semester. The outline consists of several important elements, namely a number of basic competences that are developed from the standard of competence, performance indicators for each basic competence, students' learning experiences, a general overview of teaching materials, and forms of assessment.

Development of Teaching Materials

The materials for teaching listening are developed based on the results of the needs analysis and the syllabus that has been developed. Teaching materials are developed based on the four components of language learning materials proposed by Hutchinson and Water which include input, language components, content, and task. Each learning unit contains at least one example of text that is directly related to the components of the listening text being discussed. The other element available in each unit are *building knowledge of the field, modeling of the text, working in pairs/groups, working ndividually, and reflection.* The following diagram describes the design of learning materials in each unit.

```
                 ┌──────────────────────┐
            ┌───▶│  Learning Objectives │
            │    └──────────────────────┘
            │               │
            │               ▼
            │    ┌──────────────────────┐
            │    │ Building Knowledge of│
            │    │      the Field       │
            │    └──────────────────────┘
            │               │
            │               ▼
            │    ┌──────────────────────┐
            │    │  Modeling of the text│
            │    └──────────────────────┘
            │               │
            │               ▼
            │    ┌──────────────────────┐      ┌──────────────────┐
            │    │ Working in Pairs/Groups├────▶│ Audio Activities │
            │    └──────────────────────┘      └──────────────────┘
            │               │                  ┌──────────────────┐
            │               │              └──▶│ Video Activities │
            │               │                  └──────────────────┘
            │               ▼
            │    ┌──────────────────────┐      ┌──────────────────┐
            │    │ Working individually ├──────▶│ Audio Activities │
            │    └──────────────────────┘      └──────────────────┘
            │               │                  ┌──────────────────┐
            │               │              └──▶│ Video Activities │
            │               ▼                  └──────────────────┘
            │    ┌──────────────────────┐
            └────│      Reflection      │
                 └──────────────────────┘
```

Multimedia development

The design of Learning Material (LM) is functioned by one or more training tools to operate effectively in terms of content and the anticipated results for the learner. Regarding the created pages in the environment provided by eXe, it is suggested that listening material has the ability to be designed as Learning Objects (LO), defined as "any digital resource that can be reused to support learning". The application includes "iDevices" for each small chunk of content. Just one click on an iDevice such as **free text** it will immediately create it in the editor window, as well as just one click on the red cross below it is enough to delete it again, if this iDevice was created by accident. Each page may contain one or more components-iDevices that best fit the learning goal/s. To this end it is proposed to take care and fit one page to screen, because scrolling interrupts the evolution of process. eXe is a plain tool to create learning objects that incorporate a range of elements suitable for teaching and learning activities;

simple or more complicated tasks depend on how many clicks needed to complete one task. It is worth noting and useful creating a folder to accept all images and/or sound files you wish to use for creating an LO, as just a storage folder for the working files, not the folder that this learning object will be deployed in.

A completed eXe LO has the ability to be exported in a variety of formats such as webpage or website to suit the learner's needs and utilize of Information Technology. If LO contains some MetaData a fill in on the Properties tab is necessary before exporting the object into a more usable form. Metadata is important in a Virtual Learning Environment (VLE) system which may use the data to allow users to discover your object. Instead, you can export a complete working website in a ZIP package which can be used outside of a VLE in any web browser to allow your object to be shared, perhaps by those using a stand-alone computer with no internet access. To use the zipped website, one must simply unzip the file to its own folder and launch the index.html file.

Building knowledge of the fielf

Name each part of the body below and its type in the box.

hair

hair:
straight
....
....

nose
tooth
ear
mouth
neck

nose:
....
....
....

chest
elbow

arm

hand
finger

body:
....
....
....

knee

leg

toe

foot

Modeling of the text

A. Look at the pictures of the people and describe them in pairs. Use the words in the Vocabulary Note and Grammatical Note to help you.

Vocabulary Note:	Face: oval, chubby, moustache, beard
	Size: short, tall, thin, slim, heavy, large
	Age: young, middle-aged, old
	Clothes: darl blue pants, a yellow T-shirt
	Hair: short, long, curly, straight, blond, brown, black, bald

Grammar Note:	General	Size	Age	Noun	Phrase
To describe a person, the typical order of adjectives is outlined in this chart.	beautiful	tall thin heavy	young middle-aged old	woman man	with brown hair with a mustache wearing a red shirt wearing a tie

Example: She's a beautiful, tall young woman with brown hair.

Audio Activities

A. Listen to the dinner conversation and write the name of each person on the blanks

1. _____   3. _____   5.

   _____

2. _____   4. _____   6.

   _____
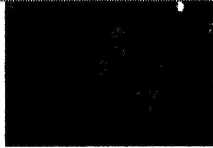
B. Listen again and check your answers with your friend in pair/group.

C. Write a one-sentence physical description of each person in the picture, Try to add more details.
   1. _____
   2. _____

Viedo Activities

A. Preview: Sun-hee's favorite cousin comes to New York City for a visit.

| Sun-hee makes plans to meet her cousin | Sun-hee plans change when a co-worker asks her to teach a class | Tara agrees to meet Sun-hee's cousin instead |

| Sun-hee describes her cousin so Tara can find him | Sun-hee gets home from her class and finds a big surprise! |

B. Look at the photos above. Then complete the sentence with a, b, or c.

1. Sun-hee and her cousin plan to meet at _____

CONCLUSION

A good model for multimedia-based listening is a model that is based on the results of in-depth analysis of the data related to the students' needs on the appropriate teaching and learning process. The appropriate input enables students to enrich their knowledge and skills in the process of learning listening. The appropriate text types helps students develop their academic and thinking skills in listening. The appropriate topics enrich students' information in understanding a wide variety of informative texts. The appropriate tasks/activities help students imporve their skills in listening . Thus, the use of eXe-learning in developing multimedia based listening is appropriate and effective sinnce it can be applied easily, without understanding HTML.

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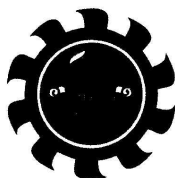
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16 March 2016
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